

Remarks

Applicants note with the appreciation the withdrawal of the finality of the previous Office Action and the withdrawal of the rejections with regards to Shukis.

CLAIM REJECTIONS

REJECTION UNDER 35 U.S.C. 102

Claims 1, 8, 12, 14 and 15 have been rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number 4,522,928, McVicker, et al. ("McVicker"), with data sheets from INCHEM.org and OSHA to show inherent state of fact.

EXAMINER'S POSITION

The Examiner takes the position that McVicker teaches the removal of contaminants from a hydroconversion catalyst, specifically ones containing a combination of GroupVIB, GroupVIIB and Group VIII metals. The fouled catalyst is contacted with a buffered oxalic acid solution to extract contaminations. The buffer may be chosen from a wide variety of organic salts and acids. One of the mentioned buffering agents is hexanoic acid, and the Examiner takes the position, citing the above data sheets discussing hexanoic acid, that hexanoic acid meets the instant claims.

APPLICANTS' POSITION

Applicants respectfully disagree with the Examiner, as it is applicants' position that McVicker does not anticipate the presently claimed invention. In order to anticipate, a given reference must disclose, either directly or indirectly, each and every element of the claimed invention.

Applicants first note that McVicker is completely silent regarding the amount of organic additive remaining on the catalyst after removal of metal contaminants. Thus, McVicker does not teach each and every limitation of the instant claims, and thus does not anticipate.

However, the differences between McVicker and the instantly claimed invention are also different in that McVicker relates to removal of metal contaminants from a deactivated hydrocracking catalyst, see McVicker col. 1, line 65 through col. 2, line 10. The present invention, on the other hand, is directed at a process for activating a hydrotreating catalyst. Applicants respectfully submit, that it is well known in the art of catalysis that removal of metal contaminants is a far different process than activation.

The Examiner is requested to reconsider and withdraw this rejection.

FIRST REJECTION UNDER 35 U.S.C. 103

Claims 1-3 have been rejected under 35 U.S.C. 103(a) as being obvious in light of United States Patent Number 5,389,592, Weismann, et al. ("Weismann ").

EXAMINER'S POSITION

The Examiner takes the position that Weismann teaches a method for enhancing regenerated hydroprocessing catalysts. The active metals for these types of catalysts include those of the Group VIB and Group VIII metals, and most commonly Ni, Co, Mo, and W, citing col. 2, lines 2-10. The process utilizes a boron containing compound as well as solvents, such as alcohols, and the examiner states that the alcohols are equivalent to the claimed organic additives. The examiner continues that alcohols are typically miscible in water and include those having boiling points between 80-500°C. The Examiner cites isopropyl alcohol as having a boiling point of 82.3°C. The Examiner also continues, citing claim 6, that the boron containing compound can be boric acid, thus teaching contacting the catalyst with an acid.

The Examiner notes that the crystalline fraction of the catalyst is not discussed in Weismann, but takes the position that one having ordinary skill in the art would have performed these reactivation processes to any suitable catalyst, including amorphous or crystalline.

APPLICANTS' POSITION

It is applicants' position that one having ordinary skill in the art and knowledge of Weismann at the time the invention was made would not have found it obvious to arrive at the presently claimed invention.

The Examiner has again presented the rejections based on Weismann. With regards to applicants' previous arguments, the Examiner takes the position that the application of hindsight is proper. In particular, the Examiner cites *In re McLaughlin*, which notes that "[a]ny judgement on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." While applicants appreciate the Examiner's assertions and applicants' do agree with the Examiner that the MPEP, specifically MPEP 2145 and 707.07(f) and *In re McLaughlin*, that a reconstruction based on obviousness is necessarily a reconstruction based on hindsight, it is applicants position that the Examiner has completely ignored the second part of this holding and the disclosure of MPEP 2145 and 707.07(f), specifically that *the application of hindsight only takes into account only knowledge that was within the level or ordinary skill in the art at time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure*. The Examiner is invited to point to a teaching concerning how to select an organic additive for use in hydrotreating catalyst activation wherein that organic additive is selected based on the solubility in water and boiling point, thus meeting the criteria of the instant claims, namely that the organic additive used in the

activation has a boiling point in the range of 80-500°C and a solubility in water of at least 5 grams per liter (20°C, atmospheric pressure), thus demonstrating that this limitation was within the knowledge or one having ordinary skill in the art at the time the invention was made. The Examiner instead has arbitrarily selected isopropyl alcohol from all alcohols as meeting the present claim limitations. Further, the Examiner has arbitrarily selected alcohols from the multitude of compounds that could be considered organic additives. In doing so, the Examiner completely ignores the multitude of alcohols and organic additives that do not meet the instant claims, and takes the position that the selection of isopropyl alcohol from all of these compounds is somehow a proper use of hindsight and the teachings of the instant invention had nothing to do with this selection. The Examiner is again invited to point to a teaching or demonstrate that the selection of an organic additive meeting the present claim criteria was within the level of ordinary skill in the art at time the claimed invention was made.

In addition to the above arguments, applicants again present their previous arguments concerning Weismann. The present invention relates to a process for activating a hydrotreating catalyst comprising a Group VIB metal oxide and a Group VIII metal oxide. This process involves contacting a catalyst with an acid and an organic additive. The organic additive has a boiling point in the range of 80-500°C and a solubility in water of at least 5 grams per liter, measured at 20°C and atmospheric pressure. After this contacting, the process can include an optional drying under conditions such that at least 50 wt % of the additive is maintained in the catalyst.

Applicants note that Weismann is completely silent as to the boiling and/or the water solubility of the alcohols used therein. In fact, Weismann simply states that alcohols can be used.

Thus, applicants take issue with the Examiner's selection of alcohols based on the teachings of Weismann and respectfully note that the Examiner is improperly using hindsight. There are many alcohols that have a boiling point outside of the presently claimed range of 80-500°C, and these alcohols are miscible in water, which meets the solubility in water limitations of the present claims. For example, methanol has a boiling point of 65°C and ethanol has a boiling point of 78°C, and both are miscible in water, meaning that they are soluble in all proportions. Pentan-1-ol, Pentan-2-ol, Hexanol, Heptanol, Octanol, Nonol, and Decanol have boiling points within the presently claimed range, but their solubility in water is well outside of the presently claimed range. Thus, not all alcohols meet the requirements of the present claims, and the Examiner's selection of an alcohol meeting the present claim requirements is only possible because of the present teachings. Further, as demonstrated in the present examples, there is a synergistic effect noted when employing an acid and an alcohol as is presently claimed.

The Examiner is requested to reconsider and withdraw this rejection.

SECOND REJECTION UNDER 35 U.S.C. 103

Claims 1-15 have been rejected under 35 U.S.C. 103(a) as being obvious in light of United States Patent Number 4,522,928, McVicker, et al. ("McVicker").

EXAMINER'S POSITION

The Examiner takes the position that McVicker teaches the removal of contaminants from a hydrotreating catalyst in order to remove contaminants. The Examiner continues to discuss, citing various portions of McVicker, the oxalic acid/buffering solution as well as the contacting temperature. In addition, the Examiner concludes that the contacting temperature must necessarily be higher than 100°C because the contacting temperature is between 0-100°C.

The Examiner notes that McVicker does not teach to apply the process to fresh hydrotreating catalysts, but takes the position that it would have been obvious to so because one having ordinary skill in the art would obviously perform reactivation strategies to any suitable catalyst.

The Examiner continues that although McVicker does not teach the acid concentration, one having ordinary skill in the art would have found it obvious to arrive at this amount because McVicker teaches that the amount of acid is selected based on the desired pH and removal of contaminants from the catalyst.\

With regards to an inorganic acid, the Examiner notes that McVicker is silent, but one having ordinary skill in the art would find it obvious to use such an acid in combination with the oxalic acid/nitric acid teachings.

With regards to citric acid, the Examiner takes the position that this is an obvious variant of oxalic acid.

With regards to the use of an organic additive having at least two hydroxy groups and 2-10 carbon atoms, the Examiner notes that the multitude of examples provided within McVicker includes examples of such compounds. In addition, the Examiner again states that the boiling point of the solutions is necessarily above 100°C. In addition, the Examiner concludes that the McVicker buffering agents necessarily are soluble in water to adjust pH.

APPLICANTS' POSITION

It is applicants' position that one having ordinary skill in the art and knowledge of McVicker at the time the invention was made would not have found it obvious to arrive at the presently claimed invention.

The present invention relates to a process for activating a hydrotreating catalyst comprising a Group VIB metal oxide and a Group VIII metal oxide. This process involves

contacting a catalyst with an acid and an organic additive. The organic additive has a boiling point in the range of 80-500°C and a solubility in water of at least 5 grams per liter, measured at 20°C and atmospheric pressure. After this contacting, the process can include an optional drying under conditions such that at least 50 wt % of the additive is maintained in the catalyst.

Applicants first point out that the Examiner has not provided support nor teaching for the limitation of the present claims that at least 50 wt % of the organic additive is maintained in the catalyst. In fact, McVicker is silent as to this point, and for good reason. McVicker does not teach an activation process as is presently claimed, but teaches a process for the removal of metal contaminants from a hydroconversion catalyst, i.e. a regeneration process. Thus, McVicker does not desire to maintain any of the compounds used therein on the regenerated catalyst. Based on this difference alone, the present invention is patentable over McVicker. However, in order to provide a complete response, applicants will address all of the Examiner's assertions.

Applicants first note that McVicker provides no teaching concerning the application of the process described therein to hydrotreating catalysts. Instead, McVicker teaches the removal of metal contaminants from hydroconversion catalysts, i.e. regeneration of hydroconversion catalysts. The present claims are directed at the activation of hydrotreating catalysts. One having ordinary skill in the art clearly understands the difference between a process directed at regenerating hydroconversion catalysts and one directed at activating hydrotreating catalysts.

With regards to the Examiner's conclusions regarding the boiling point of the solution used in McVicker, i.e. the oxalic acid/buffering compound solution, applicants take the position that this has no application to the instant invention. The limitations of the instant claims concern the boiling point of the organic additive, not the boiling point of the organic additive and acid combination. The Examiner has failed to establish any teaching in McVicker concerning the boiling point of the buffer used therein. Further, the Examiner has failed to provide any support or teaching in McVicker for selecting an organic additive having a boiling point in the range of 80-500°C and a solubility in water of at least 5 grams per liter, measured at 20°C and atmospheric pressure, as is required by the instant claims.

With regards to the Examiner's conclusions that one having ordinary skill in the art would find it obvious to apply the teachings of McVicker to fresh catalysts, applicants respectfully disagree. As noted above, McVicker teaches a regeneration process for removal of metal contaminants from hydroconversion catalysts, the metal contaminants being deposited onto the catalyst through use. One having ordinary skill in the art would not apply a regeneration process to a fresh catalyst because the reason for using the regeneration process does not exist with fresh

catalysts, i.e. fresh catalysts do not contain metal contaminants that have been deposited during use. In fact, there is no need to regenerate a fresh catalyst.

With regards to the amount of acid used, applicants agree with the Examiner that the teachings of McVicker provide support that the amount of buffering agent used is that amount to adjust the pH of the oxalic acid to between 2-10. However, applicants note that this amount can always be less than 5wt.%, and there is no teaching in McVicker to go as high as 5wt.%. In fact, McVicker teaches at col. 3, lines 2-7, that it seeks to use as low an oxalic acid concentration as possible.

With regards to the use of an additional inorganic acid within the teachings of McVicker, applicants are quite confused by the Examiner's statements. The Examiner appears to be addressing claim 11. Claim 11, however, notes that the acid used is an inorganic acid. McVicker does not provide support for using inorganic acids. In fact, McVicker provides support for the use of oxalic acid only.


Applicants are equally confused by the Examiner's statements concerning citric acid. McVicker teaches the use of oxalic acid only and is completely silent regarding any other acids. In addition, McVicker's entire invention is directed at overcoming problems associated with the use of oxalic acid in regeneration activities. One having ordinary skill in the art would not modify a teaching to overcome specific problems with a specific acid by using another acid. In addition, given the vast differences between oxalic acid and citric acid, e.g. chemical structure, pH, boiling point, acidity, mass, density, etc., one having ordinary skill the art would likely never find these two acids interchangeable.

The Examiner is requested to reconsider and withdraw this rejection.

Based on the preceding amendments and remarks, the Examiner is requested to reconsider and withdraw all rejections and objections and pass this application to allowance. The Examiner is encouraged to contact applicants' attorney should the Examiner wish to discuss this application further.

Respectfully submitted,

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